

REMARKS

Claims 1-9 were pending in the present application. New claims 10-12 are added herein. Thus claims 1-12 are now pending. The applicant respectfully requests reconsideration and allowance of the present application in view of the above amendments and the following remarks.

The applicant notes with appreciation the acknowledgement of the claim for priority under section 119 and the notice that all certified copies of the priority documents have been received.

The applicant acknowledges and appreciates receiving a copy of the form PTO-1449 submitted with the Information Disclosure Statement filed on March 30, 2004 on which the Examiner has initialed all listed items.

The drawings are objected to as allegedly failing to show every claimed feature. The Applicant respectfully disagrees.

Applicant first notes that under C.F.R. 1.83(a) features whose detailed illustration is not essential to the understanding of the invention can be shown as a labeled box. Applicant respectfully submits that the claimed timer (41), divider (43, 3, 4), and relationships between first (5, 6) and second (7, 8) periods are clearly shown in FIG 1, FIG 2, and FIG. 4 of the drawings and described in detail in Applicant's specification (see, e.g. paragraphs [0024] and [0028]). For example, in accordance with various exemplary embodiments, the timer and divider are shown within DSP 3 (see, e.g. FIG. 1 and FIG. 4) as would be clearly understood by one of ordinary skill in the art. Accordingly, since all the claimed features are shown, no replacement drawings are provided.

Claims 1-9 stand rejected under 35 USC §112, second paragraph, as being allegedly indefinite. Without acknowledging the propriety of this rejection, claims 2, 3 and 6 are amended

herein for clarification only with regard to this rejection and not for reasons related to patentability.

The claims are rejected due primarily to an alleged lack of clarity. A rejection under section 112, second paragraph requires that A) claims set forth subject matter applicant regards as the invention; and B) claims particularly point out and distinctly claim the subject matter of the invention. Since A) relies on subjective interpretation, B) necessarily forms the objective basis for a rejection under this paragraph. Item B) requires an inquiry into the definiteness of the claim, e.g. whether the scope of the claim would be clear to a person of ordinary skill in the art (MPEP 2171).

The Examiner merely asserts that claim 1 and 5 are confusing. Applicant respectfully disagrees and notes that in order to properly establish a *prima facie* case of indefiniteness, evidence must be provided to show that one of ordinary skill in the art would not be able to determine the scope and meaning of the claims *when read in light of the specification*. No such evidence is provided.

The Examiner further notes that the body of claim 1 does not “clearly state how” the claimed invention operates, and, as best understood, applies the same reasoning to claim 5. Applicant respectfully notes that it is well established that the claims need not recite *how* the claimed invention works. Further, even the specification is not required to provide a detailed explanation of how the invention works. The test is only whether or not one of ordinary skill in the art would be able to ascertain *with a reasonable degree of certainty* the scope of the claims when read in light of the specification. Applicant respectfully submits that one of ordinary skill in the art of resolver to digital converters, digital signal processors (DSPs), and the like, would be able to understand with a reasonable degree of certainty the scope of the claims when read in light of Applicant’s specification.

Further, claim 1 is clearly drawn to an embodiment of an encoder output divider configured to divide an encoded signal. The claimed invention divides an encoded signal output from an encoder. A cursory review of the specification, for example in paragraph [0023] of the specification, will reveal that the encoding referred to is associated with signals indicative of the rotational position of a resolver as would be understood by one of ordinary skill in the art.

Claim 5 is drawn to an embodiment of a resolver/digital (R/D) converter configured to find an angle of a rotor axis of a resolver based on a sine wave output and a cosine wave output of the resolver as described, for example, in paragraphs [0027] - [0028] of the specification. The claimed R/D converter includes, *inter alia*, a converter to convert the sine wave output and cosine wave output into an encoded signal, and generates a divided encoded signal having a second period, the second period related to the first period by a multiplication factor of $1/n$, where n includes an integer having a value of 2 or more. Applicant respectfully submits that the embodiment associated with claim 5 is clearly described in the relatively concise specification.

Claim 8 is drawn to an embodiment of an encoder capable of generating a divided encoded signal as described, for example, in paragraphs [0029] - [0031] of the specification. The claimed encoder includes a converter configured to convert a sine wave signal and a cosine wave signal from a resolver into an encoded signal having a first period, and a digital signal processor (DSP) configured to, *inter alia*, generate a divided encoded signal having a second period related to the determined first period by a value of $1/n$ where n is an integer of 2 or greater, and, further, to provide a selection signal such that when the rotational speed is within a designated range, the selection signal indicates that the divided encoded signal should be output, and when the rotational speed is outside the designated range, the encoded signal should be output. Again the claimed embodiment is clearly described in the specification.

The Examiner merely asserts that claim 8 is misleading. Applicant is unsure of what legal standard associated with indefiniteness is being applied in asserting that the claim is “misleading.” Claim 8 clearly recites elements of the claimed invention including a DSP configured to perform claimed functional features including measuring, using language drawn from the specification. It is well established that functional features are entitled to patentable weight and that Applicant is not limited in the claims to the exact terminology used in the specification, although with regard to claim 8, the language of the claims and the specification are in accord. For example, the description associated with the DSP “synchronizing” the timer noted by the Examiner, presumably in paragraph [0029], is not inconsistent, for example, with the description in the last sentence of the preceding paragraph [0028] where DSP 3 is described as being “configured to measure . . .”. Thus, since the language of claim 8 is literally supported, Applicant must conclude that the Examiner’s assertion that claim 8 is misleading is baseless and without merit.

Applicant therefore submits that since the claims would have been clear to one of ordinary skill in the art as written, an objection would have been a more appropriate means to address clarity issues. Since the terms in claims 1, 5 and 8 are common in the DSP arts, the claims would be clearly understandable to one of ordinary skill. Thus the rejection is improper under 35 U.S.C. §112 second paragraph.

Without acknowledging the propriety of the rejection, applicant has amended the claims to improve the clarity thereof. Accordingly claims 2, 3, 6, 8 and 9 have been amended as to matters of form only to address the Examiner’s concerns relating to clarity with regard to the terms “the calculated value” and “the measured cycle” and not for reasons related to patentability. Thus the scope of claims 2, 3, 6, 8 and 9 has not been narrowed.

Claims 1 and 5 stand rejected under 35 USC §103(a) as being allegedly unpatentable over Herb, U.S. Patent Application Publication No. 2003/0172727 A1. The rejection is respectfully traversed.

Applicant first importantly notes that in making the obviousness rejection based on a single reference, the Examiner is necessarily admitting that Herb fails to teach or suggest all the features. Accordingly, Applicant seasonably challenges herein all instances of taking of Official Notice, all instances of assertions of inherency, and all instances of reliance on personal knowledge. Applicant requests that properly combinable art be provided demonstrating the teachings relied upon to account for the admitted deficiencies in Herb or the rejection be withdrawn.

Applicants contend that Herb fails to teach or suggest elements of the claimed invention including, for example, the claimed divider configured to generate a divided encoded signal having a second period; the second period related to the first period by a multiplication factor of $1/n$; a calculator configured to calculate a value such as rotational speed based on the first period; a selector configured to select between an encoded signal output and divided encoded signal output depending on a calculated value such as a rotational speed. Since Herb fails to teach or suggest these features, the claims are not obvious for at least the reasons set forth as follows.

As best understood, the Examiner asserts that the analog output signals (60, 62, 64, 66) of resolver 36 amounts to the encoded signal and that they are generated by PLL 70. Applicant respectfully disagrees with this characterization and first notes that in Applicant's specification, for example, in FIG. 3, thereof, the encoded signal is contemplated as a digital signal. Notwithstanding the failure of Herb to teach an encoded signal, the analog output signals (60, 62, 64, 66) are not generated by PLL 70 as asserted but are rather analog outputs from resolver 36.

PLL 70, at best, allows corrections to be provided by processor 74 to control triggering of A/D conversion (paragraph [0042]).

Further, the Examiner asserts that sync input signal 79 for the A/D converter amounts to, presumably with regard to claim 5, the feature of a converter configured to convert the sine wave output and cosine wave output of the resolver into an encoded signal. Since signal 79 is a sync *input* signal to an A/D converter, Applicant is unsure of how sync signal 79 amounts to the claimed converter, particularly when read in light of the specification at, for example, paragraph [0023], where the generation of the encoded signals is described. Herb, as admitted by the Examiner, fails to teach or suggest a timer coupled to the converter and configured to measure a first period of the encoded signal. The timer 76 of Herb is for pulse width modulation, and the timer 72 is for generating internal clock signals.

The Applicant challenges the Examiner's sweeping assertion that the timer of Herb inherently teaches a long list of carefully claimed features of the present invention such as the claimed second encoded signal and the measuring function of the claimed timer particularly in light of Herb's failure to teach additional features associated with, for example, the claimed signal generator coupled to the converter and the timer and configured to generate a divided encoded signal having a second period, the second period related to the first period by a multiplication factor of $1/n$, where n includes an integer having a value of 2 or more.

It should be noted that the Examiner has not addressed Herb's failure to teach the signal generator feature and attendant functions and has not even asserted that these features are taught. Since the Examiner has admitted that Herb fails to teach or suggest other claimed features, such as the claimed encoder, the Examiner's failure to assert that Herb teaches the claimed signal generator constitutes a reasonable presumption that the Examiner is admitting that the claimed signal generator and attendant functional features are not taught.

Applicant notes for clarification that for at least the reasons set forth above, Herb fails to teach or suggest the features of claim 1 including a timer configured to measure a first period of the encoded signal and a divider coupled to the timer and configured to generate a divided encoded signal according to a second period, the second period related to the first period by a multiplication factor of $1/n$, where n includes an integer having a value of 2 or more.

Applicant notes generally that one reason that Herb may be deficient in teaching the features of claim 1 and claim 5 as noted above, is that Herb fails to teach a device for performing speed control as in the claimed invention. Thus, the features associated with the claimed invention are not present. In short, Herb, at best, belongs to the class of prior art resolvers using differential circuits, as described in Applicant's specification at paragraph [0007] and confirmed in the description of Herb at, for example, paragraphs [0021] and [0038] thereof.

Accordingly, for at least the reasons set forth hereinabove, a *prima facie* case of obviousness has not properly been established in that the applied reference fails to teach or suggest all the claimed features as required. It is respectfully requested that the rejection of independent claims 1 and 5 be reconsidered and withdrawn.

New claims 10-12 are presented to provide additional coverage for the invention. Support for new claims 10-12 can be found, for example, in paragraphs [0025], [0029] and [0030]-[0032] of the specification. Favorable consideration is respectfully requested.

Applicant notes with great appreciation the indication of allowable subject matter with regard to claims 2-4 and 6-9, and respectfully reserves the opportunity to rewrite these claims if necessary, pending the Examiner's thorough consideration of the arguments presented hereinabove. Applicants are confused by the Examiner's indication that claims 5-9 would be allowable in numbered paragraph 8 of the remarks section of the Office Action given that claim 5 is indicated as being rejected under 35 U.S.C. 103(a).

In view of the foregoing, the applicant respectfully submits that the present application is in condition for allowance. A timely notice to that effect is respectfully requested. If questions relating to patentability remain, the examiner is invited to contact the undersigned by telephone.

Please charge any unforeseen fees that may be due to Deposit Account No. 01-0305.

Respectfully submitted,



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